(a)  $\sin 2x + 6\cos x = 0$ 

2sinxcosx + 6cosx = 0

2 cusic (sinic + 3) = 0

2005)C=0 Sinc+3=0

cosic = 0 sinc = -3

 $\gamma C = 90^{\circ}, 270^{\circ}$   $\gamma C = No solutions$ 

(b) Sin 4x + 6 cos 2x = 0

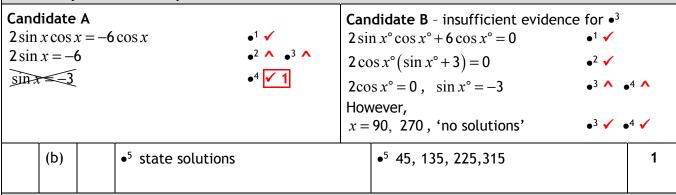
 $2\pi c = 90^{\circ}, 270^{\circ}, 450^{\circ}, 630^{\circ}$  $x = 45^{\circ}, 135^{\circ}, 225^{\circ}, 315^{\circ}$ 

Question			Generic scheme	Illustrative scheme	Max mark
15.	(a)		•¹ substitute appropriate double angle formula	$\bullet^1 \ 2\sin x^\circ \cos x^\circ + 6\cos x^\circ = 0$	4
			•² factorise	$\bullet^2 \ 2\cos x^\circ (\sin x^\circ + 3) = 0$	
			• $^3$ solve for $\cos x^\circ$ and $\sin x^\circ$	$\bullet^3  \cos x^\circ = 0 \qquad \sin x^\circ = -3$	
			• <sup>4</sup> solve for <i>x</i>	• $^{4}$ $x = 90$ , 270 'no solutions'	

## Notes:

- 1. Do not penalise the absence of '=0' at  $\bullet$ <sup>1</sup> and  $\bullet$ <sup>2</sup>.
- 2. Do not penalise the absence of '2' as a common factor at  $\bullet^2$ .
- 3. Do not penalise the omission of degree signs.
- 4. Candidates who leave their answer in radians do not gain •⁴ (if marking horizontally) or •³ (if marking vertically).
- 5.  $\bullet^4$  is only available if one of the equations at  $\bullet^3$  has no solution.
- 6. Accept  $\sin x^{\circ} = 3$  at  $\bullet^4$ .

## **Commonly Observed Responses:**



## Notes:

## **Commonly Observed Responses:**